

REMEDIAL SITE ASSESSMENT DECISION - EPA NEW ENGLAND

Site Name: Haritt Property EPA ID#: CT0000292920
Alias Site Names: One Hour Martinizing
Address: 1209-1213 Foxon Road City: North Branford State: CT
Refer to Report Dated: 05-12-97 Report type: PA
Report developed by: CT DEP

DECISION:

- | | 1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:
- | | | |
|---|--|-----------------|
| 1a. Site does not qualify for further remedial site assessment under CERCLA
(No Further Remedial Action Planned - NFRAP) | 1b. Site may qualify for further action, but is deferred to: | RCRA
 NRC |
|---|--|-----------------|
- | X | 2. Further Assessment Needed Under CERCLA: 2a. (optional) Priority: | X | Higher | | Lower
- | | | |
|--------------------|----------------|---------------------------|
| 2b. Activity Type: | PA
 X SI | ESI
 HRS evaluation |
|--------------------|----------------|---------------------------|
- | ther: Further evaluation needed

DISCUSSION/RATIONALE:

Groundwater contamination in several private wells has been partial^{ly attributed} to the site. A municipal water line has been extended to the area, however, not all users of contaminated water have been connected.

There is a documented release to the surface water pathway.

Report Reviewed
and Approved by:

Don Smith Signature:  Date: May 21, 1997

Site Decision
Made by:

Don Smith Signature:  Date: May 21, 1997

May 12, 1997

FINAL PRELIMINARY ASSESSMENT REPORT

Hartt Property (aka: One Hour Martinizing)

1209-1213 Foxon Road

North Branford, CT 06471

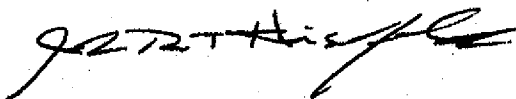
CERCLIS #: CT0000292920

INTRODUCTION

The following Preliminary Assessment (PA) complies with the requirements set forth under the US EPA Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended. The PA represents the first step in a site screening process set forth by the National Contingency Plan (NCP). It does not necessarily fulfill the requirements of other State or Federal regulations such as RCRA. This work is being completed under Connecticut's Multi-Site Cooperative Agreement (MSCA) with the US EPA.

An on-site reconnaissance of the outside property was conducted at the Hartt Property site, 1209-1213 Foxon Road, North Branford, CT on April 29, 1996 by John Hirschfeld and Tony Bobowicz of CT DEP. The weather was partly sunny and cool. The survey was conducted in accordance with the September 1991 US EPA Guidance for Preliminary Assessment under CERCLA.

Submitted by:



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NOTE: The attachments
are in Volume II of
this file.



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SITE DESCRIPTION, OPERATION HISTORY, AND WASTE CHARACTERISTICS

The Hartt Property site, located at 1209-1213 Foxon Road in North Branford, is situated on a partially-fenced acre of developed land; 41° 19' 22" north latitude, 72° 47' 39" west longitude (1). The property is occupied by one building housing three store fronts. Figure 1 shows the general location of the site, and Figure 2 illustrates the relationship of the site to neighboring businesses and residences.

The front of the parcel facing Foxon Road is a paved driveway and parking lot. Across Foxon Road, to the north, is a trap rock mining operation. The rear of the building is a gravel driveway and parking area. The front of the property from Foxon Road to 220 feet south of the road is relatively flat. The rear southern portion of the property has been excavated to 20-feet below the front of the property. A nearly vertical bank is at the rear of the property. The site is bordered to the north by Foxon Road, to the east by B & J Auto Body, to the south by Ken Albert Trucking, and to the west by a Dunkin Donuts shop (2).

The property was originally owned by Eli Schwartz (since late 1950s) and sold to Russell and Katherine Hartt on March 3, 1986 (recorded 3-14-86, N. Branford land records v159,p101) (13). A review of the site history is presented by LBG Engineering Services in their subsurface investigation of the property (3):

1209 Foxon Road (western side of the building)

1960 - 1988	Kopkind's Hardware Store
1988 - present	Connecticut Rental Center

1211 Foxon Road (center portion of building)

1967 - 1990	Ferguson and McGuire Insurance Agency Thompson-Lenzi Agency
1990 - 1992	The Blossom Boutique Flower Shop
1992 - 1993	Play it Again: Audio & Video for Less
1993 - present	Clip & Dip

1213 Foxon Road (eastern side of building)

1967 - 1978	Mac's Dry Cleaners
1978 - 1982	Mac's Auto-Marine Parts
1982 - 1983	Vacant
1983 - 1986	Creative trailer & Hitch, Inc.
1986 - 1988	Style & Curl Beauty Parlor
1988 - 1991	Tidal Pool & Spa Company
1992 - 1993	Nationwide Marketing Concepts, Inc.
1993 - 1994	Play it Again: Audio Video for Less
1994 - present	Recreational Resale

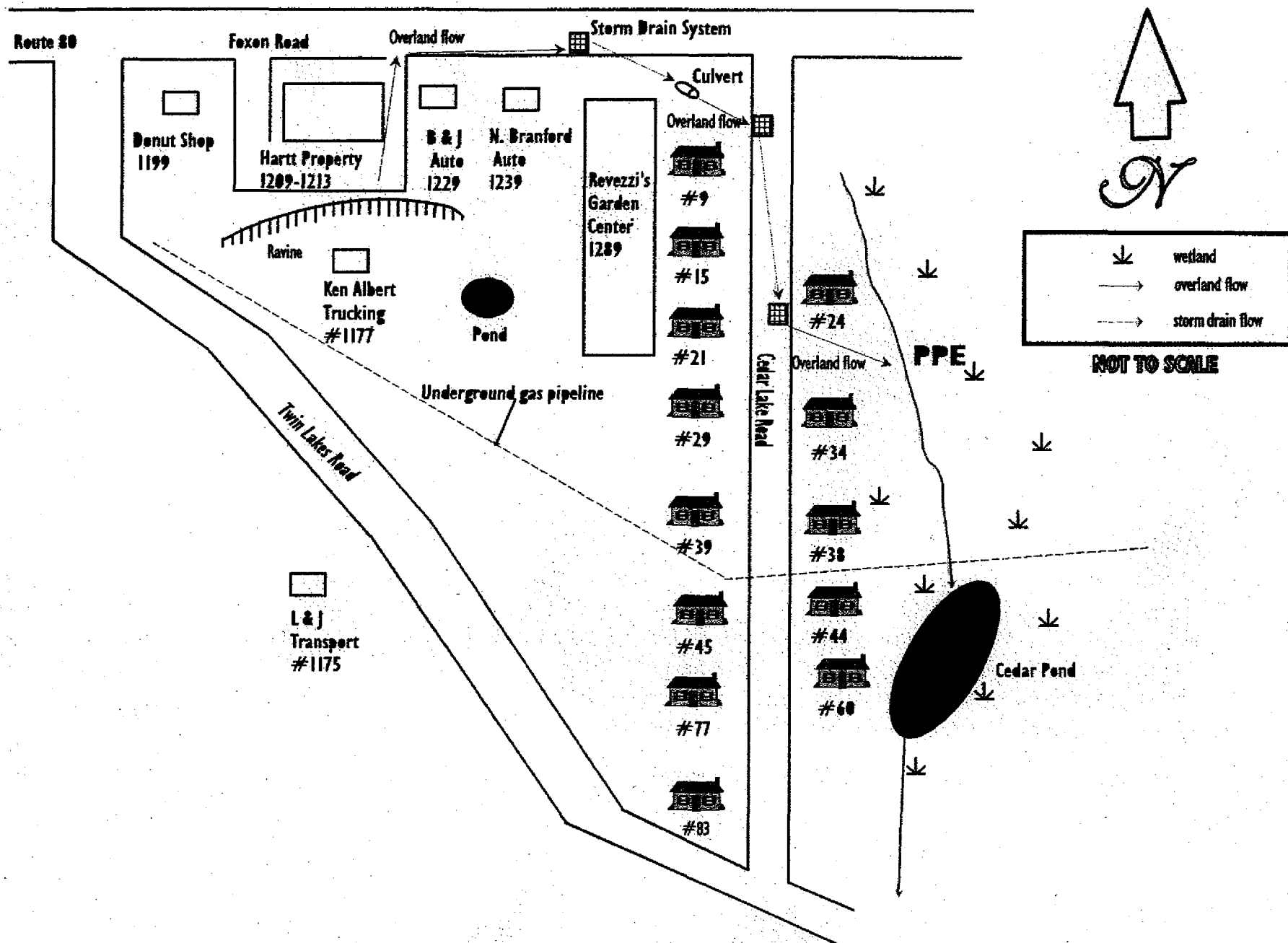


Figure 2. General locale of the Hartt Property

On January 18, 1990 groundwater contamination was discovered after a homeowner's well at 9 Cedar Lake Road, $<1/4$ -mile from the site, was sampled by the East Shore District Health Department (ESDHD). The home owner had filed a complaint with the ESDHD regarding land filling at and a hydrocarbon odor emanating from an adjacent property: Revezzi's Garden Center located at 1289 Foxon Road (*see* Fig. 2 for a spatial location, just west of 9 Cedar Lake Road). Tetrachloroethene (PCE) was detected in the well at 14 parts per billion (ppb). Dennis Johnson with the ESDHD contacted the CT DEP Water Management Bureau on February 20, 1990 regarding the PCE contamination. Mr. Johnson conducted additional sampling at 9, 15, 21, 24, 34, 44, and 45 Cedar Lake Road (4). Private drinking water well sampling results are presented in the Ground Water Pathway section of this report (*see* Table 4).

The CT DEP Potable Water Program became involved in investigating the source of the PCE contamination. CT DEP sampled wells at Revezzi's Garden Center, North Branford Auto Body (1239 Foxon Rd.), and B & J Auto Service Center (1229 Foxon Rd.). A May 8, 1990 note from the ESDHD to Naomi Davidson (CT DEP Potable Water Program) indicated that to date 8 wells were impacted (the shallowest wells having the highest levels of contamination). The highest levels of contamination were in Revezzi's irrigation wells at 962 ppb PCE. (*See* Tables 4 & 5 in the Ground Water Pathway section of this report.) Because a responsible party could not be identified, the Town of North Branford received a Water Supply Order (WC4946) from the CT DEP requiring them to provide a permanent supply of potable water to all affected properties, by extension of public water. Under this order, the Town was eligible for a State grant covering a portion of the costs of this project.

The CT DEP received a complaint from Michael Platko (34 Cedar Lake Rd.) dated May 14, 1990 concerning the usage of PCE contaminated well water at Revezzi's for irrigation (4). Mr. Platko claimed that runoff from irrigation discharged into catch basins, routing the waters into a brook adjacent to homes along Cedar Lake Rd. He also claimed that soil samples (presumably in the yards of homes along Cedar Lake Rd.) revealed PCE contamination at 45-134 ppb PCE, and that soils from the garden center's land fillings revealed benzene, toluene, fuel oil, trimethylbenzene, and naphthalene.

CT DEP investigated the complaint against Revezzi. Test pits were dug in the fill area at the garden center and monitored with a photoionization detector (PID). Two soil samples were collected from test pits that registered instrument readings (although low) on the PID. Analytical results were unremarkable. (*See* laboratory results in the Appendix.) Observations suggested that the fill materials included soil, concrete, asphalt, bricks, brush, and grass clippings. An inspection report indicated that road sweepings were also disposed of at Revezzi's Garden Center (4).

CT DEP collected samples (5-18-90) along the surface water pathway (overland flow) from Revezzi's irrigation waters, and in the wetlands and brook behind the homes along Cedar Lake Road. Analytical results indicated PCE contamination in sediments along the irrigation water runoff routes on Revezzi's property. Maximum contamination levels were detected at 110 ppb PCE in the wetlands behind Cedar Lake Road. A sediment sample from the brook revealed 23 ppb PCE. (*See* Surface Water Pathway section, Table 6 in this report.)

Soil samples collected by ESDHD (April 1990) from residential yards revealed PCE contamination at 9 Cedar Lake Road (72 ppb in the frontyard), 12 Cedar Lake Road (67 ppb in the frontyard and 45 ppb in the backyard), and at 21 Cedar Lake Road (69 ppb in the frontyard and 134 ppb in the backyard). CT DEP collected confirmation samples on May 18, 1990, which were nondetect. Additional confirmation samples collected by ESDHD on August 1, 1990 were also nondetect for PCE in the yards of these residential homes. (See Soil and Air Exposure Pathway section, Table 8 in this report.)

CT DEP determined there was a potential for runoff from the garden center's irrigation operations to contaminate adjacent lands and water. Although public water was available, the cost to use it for irrigation was prohibitive. An air stripping tower was installed to treat the irrigation well waters at Revezzi's, and is maintained by the CT DEP (5).

The treatment system consists of four previously existing ground water wells, utilizing previously installed pumps and piping supplying irrigation waters. The ground water is pumped to an air stripping tower. Gravity-fed treated water is routed, via two centrifugal pumps, to a 275-gallon holding tank for distribution to the garden center's irrigation sprinkler network. The treatment system was installed in 1991 (6).

Well construction logs are not available, but the wells are believed to be less than 200 feet deep. Constructed with a 6-inch steel surface casing, extending into bedrock, the wells are reportedly low-yield supply. The total influent flow rate to the treatment system is between 30 to 50 gallons per minute. The wells are pumped seasonally, as an irrigation system during the growing season. During operation the 4 wells pump approximately 3,000 to 5,000 gallons per day. Analytical results of samples taken from Revezzi's raw well and treated waters since 1990 are presented in the Ground Water Pathway section (see Table 5 of this report).

CT DEP collected soil samples on May 11, 1990 at North Branford Auto Body (1239 Foxon Rd.), detecting 270 ppb PCE. A confirmation soil sample collected by CT DEP on May 22, 1990 was nondetect. A waste oil sample taken at North Branford Auto during the same sampling event contained 1 ppb PCE. A generator's waste material profile sheet (East Coast Environmental Service Corp, Dec 30, 1986) indicated PCE was a constituent of North Branford Auto waste oil at 600 ppb.

Also noteworthy, was the detection of 17 ppb PCE in a floor drain sample collected by CT DEP at L & J Transport (1175 Foxon Rd.). Although, samples taken from an unmarked solvent can and stained soil at L & J did not reveal PCE. Additionally, a sample of L & J's well water, obtained by ESDHD on April 5, 1990 did not show PCE contamination (4).

Additionally, a soil gas survey was conducted (May 18, 1990) at 1209-1213 Foxon Road, the site of a former dry cleaner (1213 Foxon Rd.), which is up gradient of the garden center and the contaminated wells. Several probe samples were positive for PCE when analyzed on a portable gas chromatograph. The highest levels were detected near the back door of the building housing the former dry cleaner (4).

CT DEP sampled the septic tank serving 1213 Foxon Road (formally Mac's Dry Cleaners) on May 18, 1990. Analytical results indicated the presence of 9 ppb TCE, 4 ppb PCE, 19 ppb *trans*-1,2 dichloroethylene, and 2,700 ppb *cis*-1,2dichloroethylene. The septic tank at 1209 Foxon Road serving Connecticut Rental (formerly Koplin's and Hartt's Hardware Stores) was nondetect for chlorinated solvents. Additionally, soil samples taken by ESDHD from the leach field serving 1209 Foxon Road revealed 330 ppb PCE. This soil sample was collected on May 16, 1991 during reconstruction of the leach field. The sample was obtained at the leaching stone/soil interface, at a 3-foot depth. A duplicate soil sample contained 200 ppb PCE. Figure 3 shows the locations of the septic systems on the Hartt Property.

A CT DEP investigative report concluded that the site of the former Mac's Dry Cleaner (aka: the Hartt Property) is the most likely source of PCE contamination in the area wells. This finding was supported by the fact that several contaminated wells are up gradient of the fill area at Revezzi's (eg, 1229 and 1239 Foxon Rd.). Table 1 is a source evaluation summary.

The site of the former dry cleaner at 1213 Foxon Road is currently owned by Russell W. and Katherine G. Hartt. The Hartts purchased the property from Eli Schwartz on March 3, 1986 for \$250,000. This purchase included the strip mall of stores at 1209-1213 Foxon Road. Prior to the purchase, the Hartts operated Hartt's Hardware & Garden Center at 1209 Foxon Rd. Prior to operating the store, Russell Hartt worked in Kopkind's Hardware store at the same location, operated by Eli Schwartz. The dry cleaner was in operation from 1967 to 1978. The dry cleaning business was operated by Albert McConnell, and sold to George Tavers, an employee of Mr. McConnell's. Mr. Travers owned and operated the dry cleaners from 1973 through 1978 (4).

A pollution abatement order (WC5018) was issued to Russell and Katherine Hartt by the CT DEP on August 6, 1991. The order required that an investigation of the extent and degree of contamination, and implementation of appropriate remedial measures be conducted on the Hartt property at 1209-1213 Foxon Road in North Branford. The Hartts filed an answer and request (appeal) for a hearing before the CT DEP Commissioner, regarding the pollution abatement order, on August 21, 1991. The Hartts claim they... "were not advised when [they] purchased the property to do any ground testing nor were [they] advised that hazardous materials had been stored or discharged on this property." They feel "The property owners at the time of the contamination should be responsible and bear the expense of the clean up."

Table 1. Source evaluation for the Hartt Property

<i>Potential Source</i>	<i>Containment Factor</i>	<i>Spatial Location</i>
Filter powder pile	None	Behind 1213 Foxon Rd. (removed)
Contaminated soil	None	South-east side of 1213 Foxon Rd
Septic system leach field	None	Behind 1213 Foxon Rd

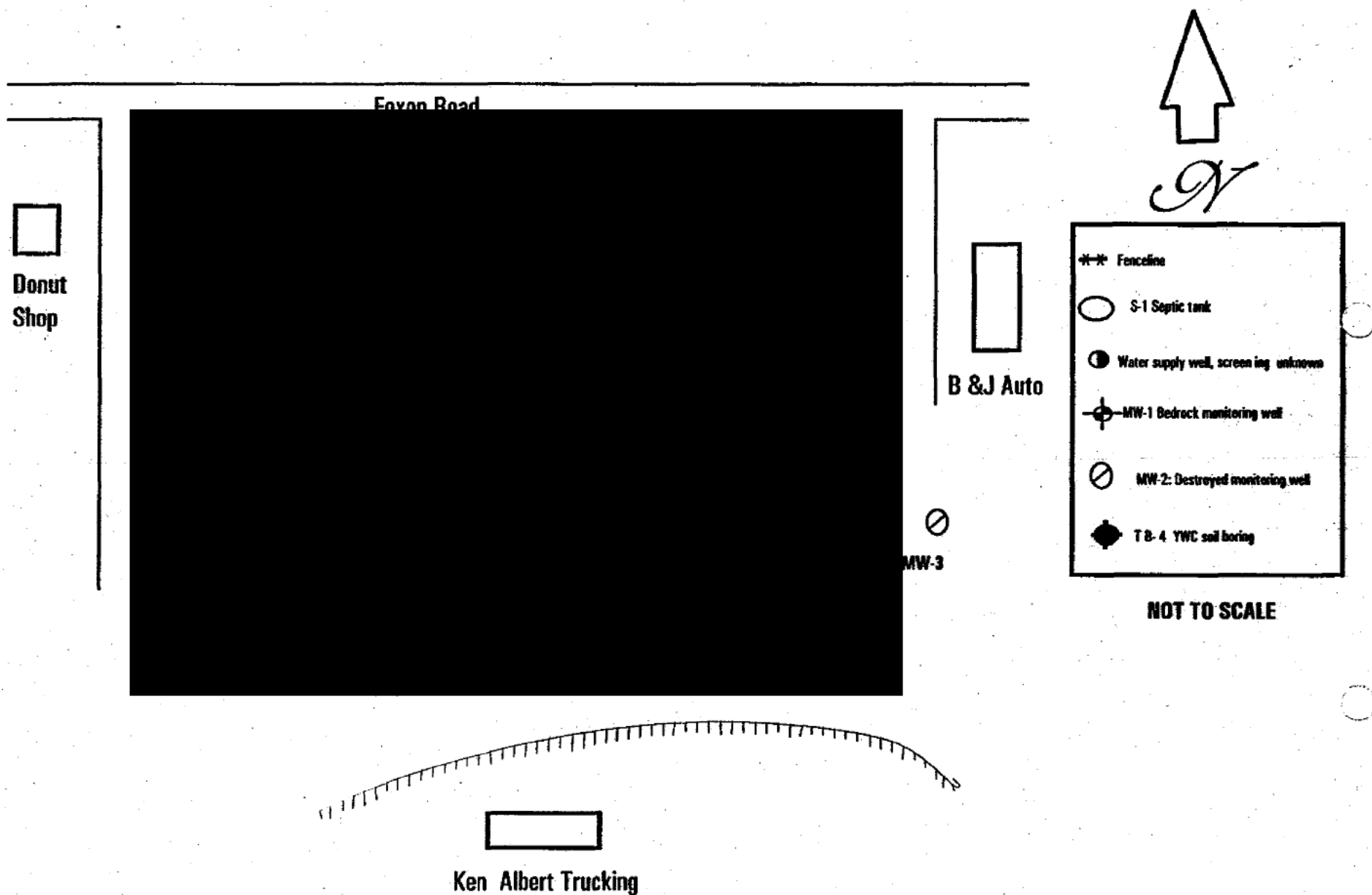


Figure 3. Sample locations on the Hartt Property

Paul Jacobi, attorney for the Hartts, obtained the services of Environmental Investigations Group (EIG) to review the status of the CT DEP's investigation into contamination associated with the Hartt Property (2). EIG conducted a CT DEP file review, and interviewed several CT DEP staff involved in the investigation. EIG also conducted a site reconnaissance.

EIG concluded in their March 1992 report that the CT DEP had not pursued other potentially responsible parties (PRPs). EIG felt that these other potential PRPs should be included in the CT DEP's enforcement order, and that those parties should be included in the States plans to conduct a ground water investigation.

On November 30, 1993, the CT DEP received a Motion to Amend Answer from the Hartts concerning order WC5018. The Hartts claimed "...that they qualify as 'innocent landowners' within the meaning of Connecticut Public Act 93-375(1)(B), because they did not know and had no reason to know, after having made appropriate inquiry, that the property they purchased was contaminated." A hearing is pending.

A deposition of George Travers was taken on May 3 and 11, 1994 (4). The transcripts reveal Mr. Travers was an employee at Mac's Dry Cleaners (then owned by Albert McConnell) during the years 1971 to 1973/4, and owner of the dry cleaning business from 1973/4 to 1978/9; having purchased it from Mr. McConnell. During the entire period of Mr. Travers' employment at, and owning the dry cleaning business, Eli Schwartz owned the site property.

Mr. Travers' account of the dry cleaning operation from 1971 until it went out of business in 1979, corroborates the results reported in the investigations conducted by CT DEP and LBG Engineering Services. George Travers described a pile of dry cleaning filter powder waste on the ground, approximately 15 feet behind the dry cleaning building, at the time he started working for Mr. McConnell. The area to the rear of the building was unpaved. The black filter power pile was approximately four-square feet and two-feet high. Mr. Travers indicated the black appearance of the pile was due to contamination with PCE, owing to improper processing (distillation) of PCE from the filter powder.

Mr. Travers indicated that the unpaved area behind 1213 Foxon Rd. was frequently flooded with rain water and septic tank overflow. (Waters from the clothes washing machines were discharged to the septic system. Reportedly, PCE was not used in this washing process.) The flooding would sometimes reach the filter powder pile, and further flow down slope to the east side of the building, down the drive way, and onto the neighboring property (B&J Auto). The area of the east side drive way is where the CT DEP and LBG detected maximum levels of PCE contamination in the soil and ground water. Mr. Travers further testified that the pile was visible to persons standing outside the rear of the building, and that the pile was still present in 1978/9 when the dry cleaner ceased operations. Mr. Travers testified that he drove by the Hartt property in 1993/94 and noticed that the rear of the site had been graded, and it appeared that much soil had been (re)moved.

The deposition of Travers also provided insight to the inner layout of the dry cleaning facility. The dry cleaning machine and PCE reclaimer (filter and distiller) were located along the left wall, towards the rear of the store front. A hole was in the left wall venting the reclaimer. CT DEP staff

observed a patched vent hole in the rear-outside wall of the building during the site visit on April 29, 1996. Just below this hole is the area of observed maximum PCE contaminated soil and ground water. Mr. Travers testified he knew of no PCE spills onsite.

A floor drain was located in the boiler room, on the right-side rear of the facility building. The floor drain, which discharged to the septic system, received wash waters from the shirt washing machine. PCE was not utilized in the shirt washing process. The bathroom was adjacent to the washing machine.

An above-ground 120-gallon PCE storage tank was located along the right-side of the rear of the building. Travers indicated the tank did not contain PCE during his tenure. He used the tank to recycling cooling waters when he owned the operation. This tank was not observed during CT DEP's site visit on April 29, 1996.

On May 18, 1994 the Hartt property was entered on CERCLIS as One Hour Martinizing. The possibility that hazardous substances were released or disposed of at this site was brought to the attention of the US EPA because the Hartt's filed a private CERCLA cost-recovery complaint against the prior land owner Eli Schwartz.

On February 27, 1995 the CT DEP received a Subsurface Environmental Investigation on the Hartt Property prepared for the Hartts by LBG Engineering Services. The LBG investigation field work conducted between October 26 and November 14, 1994 included:

- * The sampling of sludge from 2 septic tanks;
- * The drilling of 12 soil borings;
- * The installation of 5 monitoring wells;
- * The collection of 21 soil samples, from the test borings and monitoring well installations;
- * The collection of six ground water samples;
- * A survey of the location and elevation of each test boring and monitoring well; and
- * The measurement of water levels in each monitoring well.

The highest PCE concentrations detected in the shallow soil samples on the property were located at test boring 3 (TB-3), off the southeast corner of the building where Mac's Dry Cleaning was located. PCE concentrations were detected in TB-3 (0-2 feet) at 320 ppb; in TB-2 (2-4 feet) was nondetect; and at 4-6 feet 52 ppb; and in TB-1 (16-18 feet) at 78 ppb and 9,900 ppb at 34-36 feet. Monitoring well 5 (MW-5), located between TB-2 and TB-3 locations, showed 30,000 ppb PCE in the water column at 35-40 feet. All other samples collected on site by LBG were nondetect for PCE. (See Figure 3 for the location of the samples collected by LBG on the Hartt property.)

LBG did not observe PCE contamination in their sampling of the septic system. George Travers' deposition indicated he did not believe PCE went to the septic system. Although, he did indicate employees washed their hands in the bathroom after working with PCE. The sink drained to the septic system.

PCE concentrations in the surface soils decreased with an increasing distance from the corner of the building. This distribution of PCE in the surface soils suggested to LBG that a release of PCE

occurred in the vicinity of TB-3. The other observation reported by LBG regarding PCE in the soil is that it was detected progressively deeper in the soil, moving from TB-3 to TB-2 to TB-1.

The supply well serving 1209-1213 Foxon Road was also sampled by LBG. Results revealed ethylbenzene at 16 ppb, toluene at 18 ppb, and total xylenes at 190 ppb. These levels are below action levels set by the Connecticut Department of Public Health and by the US EPA. The supply well is located below the driveway along the rear of the Hartt Property line. These constituents are associated with gasoline and oil. PCE was not detected in the supply well.

During June 1996, CT DEP Potable Water Program resurveyed homes along Cedar Lake Road that were not connected to municipal water in 1990. Homes at 29, 39, 44, 45, 60, and 73 were sampled for VOCs, metals, and physical/chemical parameters on June 21, 1996. PCE was detected in the domestic water supply wells at 29 and 39 Cedar Lake Road. Concentrations were 4.5 ppb and 4.7 ppb, respectively. Confirmation resampling was conducted by CT DEP staff on July 11, 1996. PCE contamination was confirmed at 4.3 ppb and 3.6 ppb, respectively (*see* Table 2).

CT DEP Potable Water Program offered bottle water to these two residences (they declined), and is working with the Town of North Branford to extend available municipal water as a permanent supply. Negotiation continue between the CT DEP, the Hartts, and the Hartts insurance company to realize remediation of the Hartt Property.

PATHWAYS AND ENVIRONMENTAL HAZARD ASSESSMENT

Environmental Setting

Bedrock geology beneath the Hartt Property is classified as the Shuttle Meadows Formation; described as a reddish brown silty-shale. Across Foxon Road, to the north, the bedrock is classified as the Holyoke Basalt; brown-weathered basalt (trap rock). The area north of Foxon Road is a trap rock quarry operated by Tilcon Connecticut Inc. Bedrock outcrops are expressed at the bank in the southern portion of the Hartt Property. The bedding planes in the outcrops dip at an angle of 15° to the northeast. The unconsolidated sediments overlying the shale bedrock onsite are glacial till. Surficial soils onsite have been cut and graded and are classified as Urban soils (7,8,9).

The Triassic Border Fault trends southwest-northeast passing just east of the Hartt Property, along Pisgah Brook, through Linsley and Cedar Ponds. Northwest of the fault the bedrock geology consists of pink, brown, and red arkosic sandstone, conglomerate siltstone, and shale of Triassic age. Interbedded with these sedimentary rocks are flows and intrusive bodies of diabase. Southeast of the fault the bedrock consists mostly of granite and gneiss of pre-Triassic age. These rocks are derived from metamorphism of earlier sedimentary, igneous, and metamorphic rocks. They are generally massive, and are cut in most places by conspicuous joints (7,8).

Ground Water Pathway

Ground water in the area of the Hartt Property is classified as GA: presumed suitable for human consumption without treatment. LBG reports residential wells neighboring the study site are typically finished in the bedrock. Ground water flow direction is estimated by LBG to be to the south-southeast, towards Cedar Pond and its wetlands. Table 2 lists residential populations served by public and private drinking-water wells within 4 miles of the Hartt Property (10). Table 3 lists ground water supply wells within 4 miles of the Hartt site (11).

Ground water contaminated with PCE was detected in 12 private drinking-water bedrock wells as presented in Table 4. Additionally, 4 irrigation bedrock wells at Revezzi's Garden Center were found to be contaminated (Table 5). The highest levels of PCE contamination are in Revezzi's irrigation wells, at a maximum of 962 ppb. The highest level of PCE detected in a private drinking-water wells was at 21 Cedar Lake Road at 189 ppb.

CT DEP, in collaboration with the Town of North Branford, has extended municipal water to all impacted drinking-water wells, save those at 29 and 39 Cedar Lake Road. PCE contamination at these two homes was just recently detected (June 1996). The CT DEP has offered the residents at 29 and 39 Cedar Lake Road bottled water, but they have refused it. The Town and State are pursuing the hook-up of municipal water to these 2 residences. Water lines are present along Cedar Lake Road, adjacent to these residences.

Table 2. Residential populations served by public and private drinking-water wells within four miles of the Hartt Property

<i>Radial Distance (miles)</i>	<i>People on Public Well Water</i>	<i>People on Private Well Water</i>	<i>Total People</i>
0 to 1/4	0	71	103
1/4 to 1/2	0	214	308
1/2 to 1	0	854	1,230
1 to 2	4,112	2,672	6,784
2 to 3	10,199	3,001	13,200
3 to 4	14,363	3,805	18,168
TOTAL	29,176	10,617	39,793

**Table 3. Public groundwater supply wells within
four miles of the Hartt Property**

<i>Distance(mi)/ direction</i>	<i>Source name</i>	<i>Location of source</i>	<i>Population served</i>	<i>Source type</i>
██████	SCCRWA	N. Branford	Unknown	Unknown
██████	Everson Supply	N. Branford	Unknown	Unknown
██████	SCCRWA	N. Branford	Unknown	Unknown
██████	Shoreline Trailer Park	Branford	Unknown	Unknown
██████	Paved Lane Trailer Park	Branford	Unknown	Unknown
██████	SCCRWA	New Haven	Unknown	Unknown
██████	SCCRWA	New Haven	Unknown	Unknown
██████	SCCRWA	N. Branford	Unknown	Unknown
██████	SCCRWA	N. Branford	Unknown	Unknown
██████	SCCRWA	Branford	Unknown	Unknown
██████	SCCRWA	N. Branford	Unknown	Unknown
██████	SCCRWA	N. Branford	Unknown	Unknown
██████	SCCRWA	Branford	Unknown	Unknown

SCCRWA: South Central Connecticut Regional Water Authority/New Haven Water Company are blended systems. Population numbers attributable to each well point are not readily available.

**Table 4. Summary of PCE contamination levels in private drinking-water wells
adjacent to the Hartt Property**

<i>Date</i>	<i>9C</i>	<i>15C</i>	<i>21C</i>	<i>24C</i>	<i>29C</i>	<i>34C</i>	<i>38C</i>	<i>39C</i>	<i>1175F</i>	<i>1177F</i>	<i>1229F</i>	<i>1239F</i>
<i>[parts per billion (ppb)]</i>												
1-23-90	14											
2-5-90	13											
2-26-90				4.0								
2-27-90						<5.0						
3-13-90		60		5.0								
3-16-90		48		5.3								
3-28-90											19	3.1
3-29-90			189	5.0								
4-5-90							5.2		18			
5-11-90												4.2
7-24-90						4.3						
6-24-91												7.4
6-21-96					4.5			4.7				
7-11-96					4.3			3.6				

C: Cedar Lake Road; F: Foxon Road

**Table 5. Summary of sample results of PCE contamination in
Revezzi's Garden Center irrigation wells and stripping tower waters**

<i>Date</i>	<i>Well 1</i>	<i>Well 2</i>	<i>Well 3</i>	<i>Well 4</i>	<i>Discharge from tower</i>
3-28-90	210	52	610		
5-11-90				210	
5-2-91	51	180	360	180	15
6-27-91	123	7	672	306	16
7-19-91	241	154	962	558	29
5-27-94	120	145	242	181	17
6-23-95	138	240	521	134	12
8-23-96	190	390	540	240	15

All units are parts per billion (ppb)

Surface Water Pathway

Storm water runoff from the Hartt Property flows northerly as overland flow to Foxon Road. Following Foxon Road easterly downhill, the overland flow enters a storm water sewer system, surfacing briefly through a culvert at the intersection of Cedar Lake Road, and then re-enters an underground storm water sewer along Cedar Lake Road. The sewer system crosses under Cedar Lake Road and discharges to a wetland east of the road. [See Figure 2 for an illustration of this system and the probable point of entry (PPE) into a surface water body.] The PPE is in a wetland that is part of the Cedar and Linsley Ponds Drainage Basin.

An evaluation of potential storm water runoff impacts to the Cedar and Linsley Ponds Drainage Basin was conducted by Ecosystem Consulting Services, Inc. (ECS) in 1996 for the Tilcon Quarry, which is operated by Tilcon Connecticut, Inc. The quarry is located across Foxon Road from the Hartt Property.

Cedar Pond occupies a basin created by a barrier of stratified drift; having an open water surface area of 21.8 acres, with a volume of 231.7 acre feet (286,831 cubic meters). The pond has maximum and mean depths of 18.0 feet (5.5 meters) and 10.7 feet (3.3 meters), respectively. It is underlain by at least 30 feet (9 meters) of lake sediment.

Cedar Pond is filling with organic matter. It is surrounded by a dense cedar swamp, composed of low trees and shrubs, rooted in a stable soil matrix; not floating on the pond surface (8,12). The PPE is located in the northern end of this wetland.

A perennial stream runs throughout the wetland. This stream connects Cedar Pond to Linsley Pond to the south. Linsley Pond occupies a basin rimmed at various places by bedrock, till, and stratified drift. The pond has a surface area of 23.4 acres, with a volume of 522.4 acre feet (645,202 cubic meters), and has maximum and mean depths of 48.5 feet (14.8 meters) and 22.3 feet (6.8 meters), respectively. It is underlain by at least 43 feet (13 meters). Therefore, the original basin is at least 85 feet (25.8 meters) deep (8,12).

Cedar and Linsley ponds are "coastal hardwater" lakes. Since the mid-1960s, these lakes have changed from mesotrophic to eutrophic. Geologically, they are kettle hole depressions linked by a stream. Major wetlands associated with Cedar and Linsley Ponds include the wetland fringe surrounding Cedar Pond, a band of wetlands contiguous to the southeast shore of Linsley Pond, and a stream corridor wetland of approximately 1,000 feet upstream of Cedar Pond (12).

CT DEP collected samples (5-18-90) from the wetlands and stream behind homes along Cedar Lake Road, north of Cedar Pond. This location is the PPE in the stream corridor wetland, upstream (north) of Cedar Pond. A sediment sample from the brook revealed 23 ppb PCE. Additionally, a soil sample taken from the wetland contained 110 ppb PCE. Table 6 is a summary of analytical results of these sediment samples (4).

The surface water pathway beyond Linsley Pond includes Pisgah Brook, which receives flow from Linsley Pond. Pisgah Brook discharges into the Branford Supply Ponds, a recreational area. The Branford River, receiving discharge from the supply ponds, flows to Branford Harbor, which is contiguous with Long Island Sound.

Table 6. Summary results of sediment samples associated with the Hartt Property

<i>Date</i>	<i>Location</i>	<i>PCE</i>	<i>TCE</i>	<i>cis-DCE</i>	<i>trans-DCE</i>
<i>[parts per billion (ppb)]</i>					
5-18-90	Wetlands behind 24 Cedar Lake Rd.	110			
5-18-90	N-S drainage from Rivezzi's irrigation	28	4	2	3
5-18-90	E-W drainage from Rivezzi's irrigation	73	6	3	
4-5-90	Brook east of Cedar Lake Road	23	2		

A separate surface water exposure pathway may exist from irrigation waters emanating off the Revezzi Property. Contaminated ground water used for irrigation (before installation of the stripper) was discharged to the ground surface. Soil samples taken along the north-south drainage from Rivezzi's irrigation waters revealed 28 ppb PCE, 4 ppb TCE, 2 ppb *cis*-DCE, and 3 ppb *trans*-DCE. Soil samples from the east-west drainage were contaminated with 73 ppb PCE, 6 ppb TCE, and 3 ppb *cis*-DCE. Table 6 lists these results. It is unclear if Revezzi's irrigation waters have reached the surface water across Cedar Lake Road, either by overland flow or through the storm water system. The contamination found in the Cedar Pond stream corridor wetland sediments may have been from the storm water runoff from the Hartt Property through the Foxon Road storm water sewer system, from Revezzi's irrigation water runoff, or from ground water to surface water discharge. Additional investigations would be necessary to determine the exact mode of transport of PCE to the PPE.

Complicating the assessment of the discharge of contaminated ground water to surface water, is the bedrock geology at this ground-surface water interface. Two very different groups of rocks underlie this zone, separated by The Triassic Border Fault; which travels along Pisque Brook, through Linsley and Cedar Ponds. Because of this preferred pathway for liquid flow and the south-easterly dip of the fault at 10-30°, PCE contaminated groundwater could be entering the Cedar Pond-Linsley Pond-Pisque Brook system.

Soil and Air Pathway

The likelihood of public exposure to hazardous substances on the Hartt Property site is remote. The site has been graded and surface graveled since the PCE-containing filter powder waste was dumped on the ground. Table 2 presents the residential populations within four miles of the Hartt Property.

Soil samples taken by ESDHD (April 1990) from residential yards (Table 7) revealed PCE contamination at 9 Cedar Lake Road (72 ppb in the front yard), 12 Cedar Lake Road (67 ppb in the front yard and 45 ppb in the back yard), and at 21 Cedar Lake Road (69 ppb in the front yard and 134 ppb in the back yard). Confirmation samples taken by CT DEP on May 18, 1990 were nondetect. Perspectively, CT DEP Remediation Standard Regulations for residential direct exposure to soil contaminated with PCE is 12 parts per million (ppm). Any contamination of residential yards remains unclear. It may (if at all) be a result of surface water runoff from Revezzi's irrigation, or from the homeowners watering their lawns and gardens with contaminated well waters. In either event these past potential sources have been eliminated by the stripper on Revezzi's wells and the extension of municipal water to the residences.

Table 8 presents the natural diversity within a 4-mile radius of the Hartt Property. Exposure to wastes through the air pathway does not present a concern. The PCE wastes associated with the Hartt Property are well below the ground surface and are not available to the air pathway.

**Table 7. Summary of soil sample results from
residences on Cedar Lake Road**

<i>Date</i>	<i>Location</i>	<i>PCE (ppb)</i>
4-27-90	9 Cedar Lake Rd (front yard)	72
4-27-90	15 Cedar Lake Rd. (Front yard/back yard)	69/45
4-27-90	21 Cedar Lake Rd. (front yard/back yard)	67/134

TABLE 8. Natural Diversity within a four-mile radius of the Hartt Property

<i>Radial Distance (mi)</i>	<i>Common name</i>	<i>Scientific name</i>	<i>Last date observed</i>	<i>State/ Federal Status*</i>
onsite to 1/4	none			
1/4 - 1/2	Mossy valvata	<i>Valvata sincera</i>	1995	SC
1/2 - 1	Hairy-lip fern	<i>Cheilanthes lanosa</i>	1991	E
	Subacidic cliffs		1986	
	Threeridge valvata	<i>Valvata tricarinata</i>	1979	SC
1 - 2	none			
2 - 3	Whitlow-grass	<i>Draba reptans</i>	1878	SC
	Mudwort	<i>Limosella subulata</i>	1981	SC
	Globe-fruited false-loosestrife	<i>Ludwigia sphacrocarpa</i>	1993	E
	Small's yellow-eyed grass	<i>Xyris smalliana</i>	1935	E
	Spike-rush	<i>Eleocharis Quadrangulata</i>	1912	E
	Little green sedge	<i>Carex viridula</i>	1882	E
	Brackish intertidal marsh		1985	
	Sand bramble	<i>Rubus cuneifolius</i>	1995	SC
3 - 4	Common loon	<i>Gavia immer</i>	1890	SC
	American bittersweet	<i>Celastrus scandens</i>	1994	SC
	Seventeen-year periodical cicada	<i>Magicicada septendecim</i>	1979	SC
	A notuid moth	<i>Zale obliqua</i>	1980	SC
	Jefferson salamander	<i>Ambystoma jeffersonianum</i>	1956	SC
	Swamp cottonwood	<i>Populus heterophylla</i>	1895	E

* State status: E = state endangered, T = state threatened, SC = state special concern; Federal status: 3B = former category rejected because of a synonym or hybrid, 3 C = former category rejected because more common or adequately protected.

SUMMARY

The Hartt Property site is located at 1209-1213 Foxon Road in North Branford. A May 8, 1990 note from the East shore District Health Department (ESDHD) to the CT DEP Potable Water Program indicated that potable drinking water wells neighboring Foxon Road were PCE contaminated. The highest levels of contamination were in the irrigation wells at Revezzi's Garden Center on Foxon Road (962 ppb PCE). The Town of North Branford received a Water Supply Order (WC4946) from the CT DEP requiring them to provide a permanent supply of potable water to all affected properties, by extension of public water.

Soil samples collected by ESDHD (April 1990) from residential yards adjacent to the garden center revealed PCE contamination at 9 Cedar Lake Road (72 ppb in the front yard), 12 Cedar Lake Road (67 ppb in the front yard and 45 ppb in the backyard), and at 21 Cedar Lake Road (69 ppb in the front yard and 134 ppb in the back yard). CT DEP collected confirmation samples on May 18, 1990, which were nondetect. Additional confirmation samples collected by ESDHD on August 1, 1990 were also nondetect for PCE in the yards of these residential homes.

CT DEP collected samples (5-18-90) along the surface water pathway (overland flow) from Revezzi's irrigation waters, and in the wetlands and brook behind the homes along Cedar Lake Road. Analytical results indicated PCE contamination in sediments along the irrigation water runoff routes on Revezzi's property. Maximum contamination levels were detected at 110 ppb PCE in the wetlands behind Cedar Lake Road. A sediment sample from the brook revealed 23 ppb PCE.

CT DEP determined there was a potential for runoff from the garden center's irrigation operations to contaminate adjacent lands and water. Although public water was available, the cost to use it for irrigation was prohibitive. An air stripping tower was installed to treat the irrigation well waters at Revezzi's, and is maintained by the CT DEP (5).

Additionally, a soil gas survey was conducted at 1209-1213 Foxon Road, the site of a former dry cleaner (1213 Foxon Rd.), which is up gradient of the garden center and the contaminated wells. Several probe samples were positive for PCE when analyzed on a potable gas chromatograph. The highest levels were detected near the back door of the building housing the former dry cleaner (4). A CT DEP investigative report concluded that the site of the former Mac's Dry Cleaner (aka: the Hartt Property) is the most likely source of PCE contamination in the area wells. This finding was supported by the fact that several contaminated wells are up gradient of the fill area at Revezzi's (eg, 1229 and 1239 Foxon Rd).

CT DEP also sampled the septic tank serving 1213 Foxon Rd. (Formally Mac's Dry Cleaners) on May 18, 1990. Analytical results indicated the presence of 9 ppb TCE, 4 ppb PCE, 19 ppb *trans*-1,2-dichloroethylene, and 2,700 ppb *cis*-1,2-dichloroethylene. The septic tank serving 1209 Foxon Road (formerly Koplin's and Hartt's Hardware Stores) was nondetect for chlorinated solvents. Additionally, soil samples taken by ESDHD from the leach field serving 1209 Foxon Road revealed 330 ppb PCE.

The site of the former dry cleaner at 1213 Foxon Road is currently owned by Russell W. and Katherine G. Hartt. The Hartts purchased the property from Eli Schwartz on March 3, 1986 for \$250,000. This purchase included the strip mall of stores at 1209-1213 Foxon Road. Prior to the

purchase, the Hartts operated Hartt's Hardware & Garden Center at 1209 Foxon Rd. Prior to operating the store, Russell Hartt worked in Kopkind's Hardware store at the same location, operated by Eli Schwartz. The dry cleaner was in operation from 1967 to 1978. The business was operated by Albert McConnell, and sold to George Travers, an employee of Mr. McConnell's. Mr Travers owned and operated the dry cleaners from 1973 through 1978.

A pollution abatement order (WC5018) was issued to Russell and Katherine Hartt by the CT DEP on August 6, 1991. The Hartts filed an answer and request (appeal) for a hearing before the CT DEP Commissioner, regarding the pollution abatement order, on August 21, 1991. The Hartts claim they... "were not advised when [they] purchased the property to do any ground testing nor were [they] advised that hazardous materials had been stored or discharged on this property." They feel "The property owners at the time of the contamination should be responsible and bear the expense of the clean up." A hearing is pending. The CT DEP and the Hartts have had several discussions since the issuance of the order.

A deposition of George Travers was taken on May 5 and 11, 1994. George Travers described a pile of dry cleaning filter powder waste on the ground, approximately 15 feet behind the dry cleaning building, at the time he started working for Mr. McConnell. Mr. Travers indicated the black appearance of the pile was due to contamination with PCE, owing to improper processing (distillation) of PCE from the filter powder. Mr. Travers indicated that the unpaved area behind 1213 Foxon Rd. was frequently flooded with rain water and septic tank overflow. The flooding would sometimes reach the filter powder pile, and further flow down slope to the east side of the building, down the drive way, and onto the neighboring property (B&J Auto). The area of the east side drive way is where the CT DEP and LBG detected maximum levels of PCE contamination in the soil and ground water.

On May 18, 1994 the Hartt property was entered on CERCLIS as One Hour Martinizing. The possibility that hazardous substances were released or disposed of at this site was brought to the attention of the US EPA because the Hartt's filed a private CERCLA cost-recovery complaint against the prior land owner Eli Schwartz.

On February 27, 1995 the CT DEP received a Subsurface Environmental Investigation on the Hartt Property prepared for the Hartts by LBG Engineering Services. PCE concentrations in the surface soils decreased with an increasing distance from the corner of the building. This distribution of PCE in the surface soils suggested to LBG that a release of PCE occurred in the vicinity of TB-3. The other observation reported by LBG regarding PCE in the soil is that it was detected progressively deeper in the soil, moving from TB-3 to TB-2 to TB-1.

During June 1996, CT DEP Potable Water Program resurveyed homes along Cedar Lake Road that were not connected to municipal water in 1990. Homes at 29, 39, 44, 45, 60, and 73 were resampled for VOCs, metals, and physical/chemical parameters on June 21, 1996. PCE was detected in the domestic water supply wells at 29 and 39 Cedar Lake Road. Concentrations were 4.5 ppb and 4.7 ppb, respectively. Confirmation resampling was conducted by CT DEP on July 11, 1996. PCE contamination was confirmed at 4.3 ppb and 3.6 ppb, respectively.

In total, ground water contamination with PCE was detected in 12 private drinking-water bedrock wells. Additionally, 4 irrigation bedrock wells at Revezzi's Garden Center were found to be contaminated. The highest levels of PCE contamination are in Revezzi's irrigation wells, at a

maximum of 962 ppb. The highest level of PCE detected in a private drinking- water wells was at [REDACTED] at 189 ppb.

CT DEP, in collaboration with the Town of North Branford, has extended municipal water to all impacted drinking-water wells, save those at 29 and 39 Cedar Lake Road. The CT DEP has offered the residents at 29 and 39 Cedar Lake Road bottled water, but they have refused it. The Town and State are pursuing the hook-up of municipal water to these 2 residences. Water lines are present along Cedar Lake Road, adjacent to these residences.

Storm water runoff from the Hartt Property flows through a storm water sewer system, into a surface water body, east of Cedar Lake Road. The PPE is in a wetland that is part of the Cedar and Linsley Ponds Drainage Basin. CT DEP collected samples (5-18-90) from the wetlands and stream behind homes along Cedar Lake Road, north of Cedar Pond. This location is the PPE in the stream corridor wetland, upstream (north) of Cedar Pond. A sediment sample from the brook revealed 23 ppb PCE. Additionally, a soil sample taken from the wetland contained 110 ppb PCE.

The likelihood of public exposure to hazardous substances on the Hartt Property site is remote. The site has been graded and surface graveled since the PCE-containing filter powder waste was dumped on the ground.

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